2001 Seabeach Amaranth Survey
Cape Hatteras National Seashore

Sixty-one seabeach amaranth specimens, A*maranthus pumilus,* were found in surveys conducted at Cape Hatteras National Seashore (CAHA) in August of 2001 (Table 1). This represents an increase over the past two years. A record low of two plants was found in 2000 and only eight plants were documented in 1999. This season 53 seabeach amaranth plants were found growing on Hatteras Island within designated bird closures. Of these, 37 were located on upper dry sand flats at the Cape Hatteras Point (Cape Point and South beach). The remaining 16 were found in a line of small dunes adjacent to the flats at Hatteras Island spit. On Ocracoke Island, eight plants were found growing at the base of the dunes on the beach. They were widely dispersed on the northern half of the island between Ramps 67 and 59. This is approximately a seven-mile stretch closed to vehicles and receiving relatively low pedestrian traffic.

Table 1. 2001 Seabeach Amaranth Survey Results
Cape Hatteras National Seashore

Location	Number of Plants
Cape Point/South Beach	37
Hatteras Island spit	16
Ocracoke Island	8
Total	61

In mid-September, a northeast swell followed by full moon high tides caused ocean overwash along the beaches. Only three plants at Hatteras spit and five plants on Ocracoke Island beaches survived the overwash events. Approximately two weeks later, no plants were found at Hatteras spit or Ocracoke Island due to additional storm tide and overwash events. Cape Point remained unaffected due to higher elevation. This is the fourth consecutive year that weather related activities prematurely ended the seabeach amaranth growing season at CAHA. However, this species produces abundant seeds and many plants produced some seeds before being impacted by late season flooding.

In addition to the documented specimens, several seabeach amaranth plants were sighted along the NC Highway 12 near the north end of Ocracoke Island. Before their actual numbers were recorded, the plants succumbed directly or indirectly to the mid-September overwash episode. It is unknown if these particular plants (approximately ten) died from localized salt water flooding or afterwards from the use of heavy equipment used by North Carolina Dept. of Transportation (NCDOT) in removing overwash sediments from the road. The artificial dune line in this area was built by NCDOT using stock piled sands dredged from Hatteras Inlet. Amaranth seeds have been known to germinate in dredge material placed on other sites including Assateague Island National Seashore (Jack Kumer, NPS, personal communication). The dredge material used on Ocracoke may have contained such stored seeds giving rise to plants next to the road. Methods to

protect plants growing at such sites next to the asphalt need to be explored. It also raises questions of whether plants growing in these conditions should be left in place since most seeds produced would fall or blow onto the highway. The artificial dune line would block most seeds from dispersing on the beach side the dunes.

In recent years, the amaranth population has been relatively low at CAHA (Table 2) as well as other North Carolina locations. Some biologists feel this is due to an increase in hurricane activity along the North Carolina coast in the 1990's (Nora Murdock, USFWS, personal communication). No Hurricanes have occurred close to CAHA since 1999. This may be reflected in the modest increase in plant numbers seen this year.

Table 2 Amaranth Population Trends over the Past Six Years
Cape Hatteras National Seashore

Year	Number of Plants
1996	98*
1997	81
1998	265
1999	8
2000	2
2001	61

* does not include 50 seedlings less than 1/2 inch in diameter

This year's survey did not include any amaranth plants grown in experimental plots by East Carolina University researchers.

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